

day 59

H/W for Monday/Tuesday

4.4/1-10

3.11/34-35

4.2/88-89

4.3/54,61-62

4.5/1-6

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What is the best polynomial
you can create to "approximate"
the curve of $\cos(x)$ at $x=0$?

✓ 1) $P(0) = \cos(0) = 1$ right answer

✓ 2) $P'(0) = \frac{d}{dx}(\cos(x))|_{x=0} = 0$ right tangent
 $(-\sin(0)) = 0$

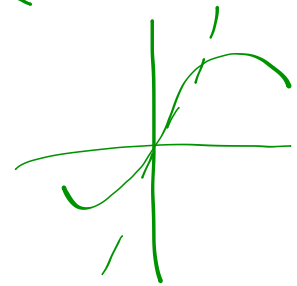
3) $P''(0) = \frac{d^2}{dx^2}(\cos(x))|_{x=0} = -\cos(0) = -1$

ditto for $y = \sin x$ at $x = 0$

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$$y = 1 - \left(x + \frac{\pi}{2}\right)^2 \quad 1) y = 0$$

$$y = (x)(x - \pi)(x + \pi) \quad 2) y = x$$



4.5 "Local Linear Approximation"

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⇒ Approximating a function *locally*
with a tangent line.